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## <u>Abstract</u>

A polythioether includes a structure having the formula I

$$-R^{1}-[-S-(CH_{2})_{2}-O-[-R^{2}-O-]_{m}-(CH_{2})_{2}-S-R^{1}-]_{n}-$$

- 5 wherein
  - R<sup>1</sup> denotes a divalent  $C_{2-6}$  n-alkyl,  $C_{3-6}$  branched alkyl,  $C_{6-8}$  cycloalkyl or  $C_{6-10}$  alkylcycloalkyl group, or  $-[(-CH_2-)_p-X-]_q-(-CH_2-)_r-$ ,
  - R<sup>2</sup> denotes methylene, a divalent  $C_{2-6}$  n-alkyl,  $C_{2-6}$  branched alkyl,  $C_{6-8}$  cycloalkyl or  $C_{6-10}$  alkylcycloalkyl group, or  $-[(-CH_2-)_p-X-]_q-(-CH_2-)_r-$ ,
- 10 X denotes one selected from the group consisting of O, S and -NR<sup>6</sup>,
  - R<sup>6</sup> denotes H or methyl,
  - m is a rational number from 0 to 10,
  - n is an integer from 1 to 60,
  - p is an integer from 2 to 6,
- 15 q is an integer from 0 to 5, and
  - r is an integer from 2 to 10.

The polythioether is a liquid at room temperature and pressure.